

EXHIBIT 19

[SEARCH](#)

EDN

HOME DESIGN CENTERS PRODUCTS & TEARDOWNS BLOGS DESIGN IDEAS SUBSCRIBE LOGIN

DESIGN TEARDOWNS

Teardown: Google Home Hub smart speaker and display

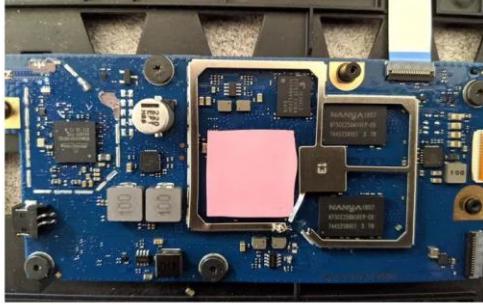
OCTOBER 14, 2020 BY BRIAN DIPERT

Mine is an Amazon Echo-centric household, as I've mentioned before, but Google's smart speaker-and-display ecosystem has lots of advocates, too. So whenever I see a compelling sale on something Google-branded that I haven't yet dissected, I don't hesitate to pull the "purchase" trigger for your and my shared curiosity-satisfying benefit. Especially when it's something that I've already conceptually discussed.

Such was the case last summer, when Walmart ran a promotion that bundled a free Smart Light Starter Kit (a Google Home Mini and a GE C-Life Smart Light Bulb) with a \$30-off Google Home (now Google Nest) Hub all for \$79. To date, I've already disassembled the smart bulb and I had already torn down a Home Mini (now the Nest Mini) so this one's sitting in my to-gift pile. Today, the third member of the triumvirate, the Google Home Hub, goes under the knife.

My particular unit was brand new in spite of being both heavily discounted and further bundled with free goodies. Although the Walmart website product listing at the time I bought the kit indicated that it included a "Google Nest Hub," you'll notice that the packaging calls it a "Google Home Hub." That, I suspect was the motivation behind the promotion; Google was in the midst of re-branding the product (along with others, like the Home Mini) under its "Nest" product family umbrella and, instead of pasting tacky stickers on the boxes of originally-named devices already in retailers' hands, it instead temporarily dropped the price to clear out the stock.

Here's a set of packaging shots with the shrink wrap removed:



Inside one of the Faraday cages is, unsurprisingly, a [Broadcom BCM4345](#) Bluetooth-plus-dual-band-Wi-Fi controller IC (note its proximity to the aforementioned antenna). Inside the other cage are two [Nanya NT5CC256M16EP-EK](#) 4 Gbit x16 DDR3 SDRAMs, along with a Kioxia (a company I've admittedly never heard of before) [TC58NVG2SOHBA16](#) 4 Gbit SLC NAND flash memory (another brief aside: while Google's reference design is based on the [Android Things operating system](#), the Home Hub actually runs Google's [Cast operating system](#)). And last but not least, there's another piece of thermal tape:

<https://www.edn.com/teardown-google-home-hub-smart-speaker-and-display/>